

Article

CEO Overconfidence and Corporate Governance in Affecting Australian Listed Construction and Property Firms' Trading Activity

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Abstract: This paper aims to examine whether and to what extent overconfident CEOs affect Australian real estate investment trusts' (A-REITs) property investment activities during their tenure as the CEO of A-REITs, covering the period 2000–2019. A-REITs' property investment and disposal activities are separately modelled against CEOs shares in their companies (an indicator of CEO overconfidence), as well as other controlled variables. We found that around 68% of A-REIT CEOs are overconfident over the study period. However, our empirical results also indicated that CEO overconfidence did not have a profound impact on A-REITs' investment activities, either property acquisitions or disposals. This could be explained by high corporate governance of A-REITs. Specifically, Australian construction and property companies are the leading market players in sustainability. As publicly quoted companies, listed property and construction companies, particularly A-REITs could be exposed to various managerial issues, including corporate CEO overconfidence and its influence on the investment decision-making process. However, this managerial issue could be minimized via an enhancement of corporate governance that is a key pillar of sustainability. The mitigation of corporate overconfidence and implementation of corporate governance mechanisms makes REITs more accountable to their investors. The implications of the findings have also been discussed.

Keywords: A-REITs; investments; overconfidence; corporate governance; construction and property firms; behavior

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1. Introduction

The contribution of the construction and property industry has been significantly increasing in the last few years. According to the Property Council of Australia (PCA), the property and construction industry made a great contribution to the Australian GDP in 2015 (13% or AUD 202.9 billion) and offers a high number of 1.4 million jobs to the Australians, more than mining and manufacturing jobs combined [1]. This contribution has increased as the EPRA Total Markets table shows that at the time Australian GDP was USD 1.4 trillion, the Australian commercial real estate in 2019 was worth USD 612.50, which includes A-REITs' market cap of USD 99.82 billion [2].

A-REITs are among the most successful property investment vehicles in the world. As of December 2019, there were 46 REITs with a market capitalisation (cap) of USD 99.82 billion [2]. This accounts for 32% of total Asia-Pacific REITs' market cap and 6% of total global REITs' market cap [3]. The A-REIT market is also the second largest REIT market in the Asia-Pacific, and the third largest REIT market in the world [3]. A-REITs were previously known as listed property trusts (LPTs). They were renamed to REITs in 2008, as the REIT nomenclature is a more adapted terminology globally [4]. Importantly, a significant majority of these A-REITs operate using the stapled framework, a structure which

allows them to have a significant involvement in the property development spectrum, whilst maintaining the fiscally efficient investment trusts format [5]. As such, many leading construction and property development companies (e.g., Goodman, Charter Hall, Mirvac Group) are listed in a REIT structure on the Australian Securities Exchange (ASX). Importantly, Lee et al. [6] found a strong connection between this sector and the broader economy, reflecting the sector's critical contribution to the broader economy.

A-REITs' growth was slow during the initial establishment period, but they have experienced an accelerated growth since their market cap increased significantly since the 1990s [4,7,8]. The authors explained that this growth was caused by a significant increase in investors' appetite towards A-REITs, especially amongst institutional investors. Newell and Peng [8] stated that A-REITs became attractive to investors after they had an impressive track-record and a substantial increase in the number and quality of their commercial property assets. Furthermore, the Australian property market (which includes A-REITs) has been widely seen as a highly transparent property market and it is classified as the second most transparent market in the world after the United Kingdom (UK) [9]. Figure 1 shows the increase in A-REITs' market cap over the period 2000–2018 while Table 1 compares A-REITs market cap with other large REIT markets.

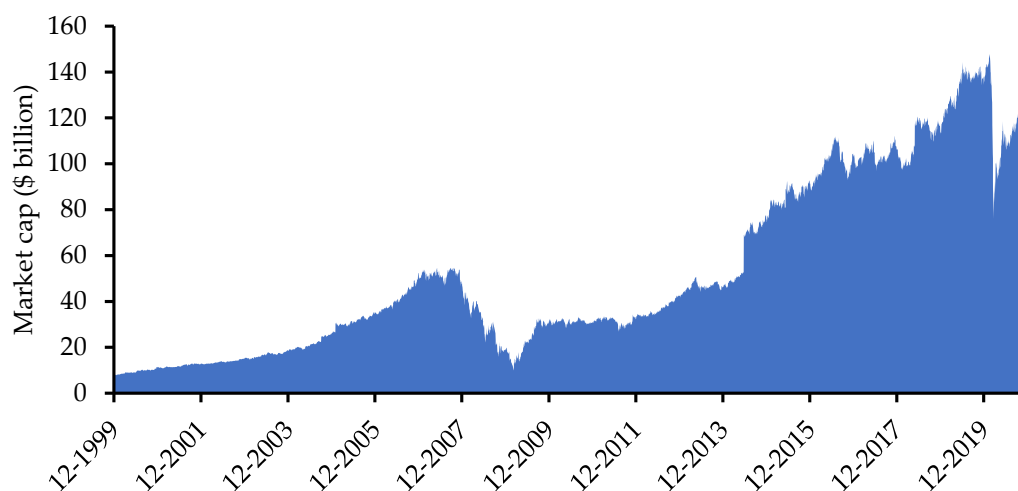


Figure 1. Market Cap of A-REITs (ASX 200 REIT Index): 1999–2020. Source: Authors' Compilation from DataStream.

Table 1. Top 10 REITs Markets in 2019.

| Country | Number of REITs | Sector Mkt Cap (USD billion) | % of Global REIT Index |
|------------|-----------------|------------------------------|------------------------|
| US | 192 | 1163.18 | 64.98% |
| Japan | 66 | 128.43 | 8.23% |
| Australia | 46 | 99.82 | 5.91% |
| UK | 55 | 76.24 | 4.79% |
| Singapore | 35 | 61.64 | 2.26% |
| Canada | 46 | 61.16 | 3.23% |
| France | 29 | 57.72 | 1.77% |
| Hong Kong | 9 | 37.45 | 2.25% |
| Netherland | 5 | 26.75 | 1.83% |
| Spain | 72 | 26.74 | 0.67% |

Source: [2,3].

A-REITs are renowned to have strong commitment and leadership in corporate governance, corporate social responsibility (CSR) and sustainability [10], as they articulate substantial CSR strategies and performance in the CSR reports they produce, both at an individual and portfolio level. They have been found to have a very efficient usage of energy and water, which made them classified as highly rated green-star properties [10]. Furthermore, A-REITs have received many property and government CSR awards, which also seen them supported by Australian Socially Responsible Investment (SRI) funds by including them in their investment portfolio. In light of this, Westermann et al. [11] stressed the importance of maintaining the managerial implementation of long-term oriented corporate governance policies, a matter which encourages sustainable investments.

The growth of REIT markets in Australia and globally has attracted increasing attention on how CEOs of large corporations such as REITs affect the corporate investment decision-making at a personal level. In other words, the behavioural finance perspective has been widely seen as alternative considerations that offer important new insights [12]. One of the key behavioural biases is overconfidence. The effects of overconfidence are well established in the mainstream finance literature. For instance, empirical evidence is available to suggest that overconfident CEOs are more likely to use debt financing instead of equity financing [13]. CEO overconfidence also has profound impacts on reporting or misreporting of financial information [14], evaluation of business projects [15], position or managerial turnover of CEOs [16], and innovation [17,18]. However, the impact of CEOs overconfidence can be insignificant and controlled or mitigated if certain measures are followed, such as budgetary controls [19], accounting conservatism [20], prevention focus [21], and corporate governance mechanisms which monitor the decision-making process and take actions accordingly [22].

The mixed results in the mainstream finance literature can be attributed to the limitation of industry characteristics and the insufficient and/or difficulty to control for industry characteristics in aggregated studies [23,24]. Industries' effect cannot be fully controlled by a panel model because each industry may have its own formal and informal rules, as well as a variation in information environments [23,24]. As a result, this study uses a sectoral analysis (i.e., REITs) to investigate the role of CEO overconfidence.

A sectoral study of REITs is particularly important for a number of reasons. First, REITs have a well-developed framework in which REITs must comply with numerous guidelines and provisions, including primarily own income-generating real estate for the long term and distribute income to shareholders. Some REIT regulators also impose a gearing limit directly or indirectly. For instance, there is no specific gearing rule, but the general thin capitalization rules may apply in which this would limit the use of gearing [25–27]. More specifically, REITs have been constrained using debt or gearing. The developed framework arguably would enhance corporate governance of REITs and limit behavioural biases such as overconfidence. Importantly, corporate governance has been widely seen as a key pillar of sustainability in many green rating systems [28]. Daniel and Titman [29] also argued overconfidence is likely to influence REIT investors as REITs do provide less subjective information with stable incomes. This naturally raises a question of whether overconfident REIT CEOs can affect REIT investment decisions easily such as CEOs in other sectors. Second, REITs are a relatively large and homogenous industry. As discussed by Chui et al. [30], the classification of a firm into REITs, unlike other industries, is relatively straightforward. Further, this sector plays a critical role to the broader economy [6].

Although the vast amount of mainstream finance and accounting literature has examined the influence of overconfidence in corporate decision-making and activity, its influence on REITs' corporate decision-making has been largely ignored in the literature. Few exceptions are Eichholtz and Yönder [31], Tan [32], Yung et al. [33], Bao and Li [34,35]. Eichholtz and Yönder [31] found that overconfident CEOs do have a discernible impact on US REIT activities. Specifically, overconfident CEOs tended to increase the property acquisition activities and decrease the disposition activities. Further, Tan [32] offered empirical evidence to suggest that overconfident CEOs tend to make irrational financing decisions, specifically issuing

more debt than equity despite the high liquidity risk that their REITs face. This is consistent with the findings of Yung et al. [33], as they found that not only overconfident CEOs issue more debt, but also buy back more shares, all of which are associated with a significant negative impact on the performance of REITs. However, they only focus on the US REIT market. Further, international evidence is largely unavailable. Using six Asian Pacific REIT markets, Bao and Li [34] found that market inefficiency amplifies the overconfidence effect amongst investors, particularly during a bull market. Bao and Li [35] also found CSR had a positive impact on US REITs' financial performance, but this influence is undermined by overconfident CEOs. However, the influence of overconfident CEOs on A-REITs remains largely unexplored. This raises a question of the impact of CEOs overconfidence on A-REITs.

Recently, there has been an increasing amount of interest from investors, lenders and other stakeholders in ESG, corporate governance and sustainability, where firms are encouraged to integrate sustainable and governance in their business decisions [36,37]. This is also the case of REITs as an increasing demand from investors for a higher level REITs' disclosure of their ESG practices has been evident [37,38]. As a result, REITs operations and performance are being directly impacted by their ESG practices because implementing good ESG and corporate governance practices can facilitate their access to capital and lower their borrowing costs [37]. On the other hand, CEO overconfidence has been found to have a bad impact on firms' long-term performance when less CSR activities are undertaken [39].

ESG and corporate governance, therefore, have received a vast amount of attention from policy makers and property researchers that studied many issues of CSR and sustainability [10,28,40]. Further, a large number of property studies have been performed in managerial and behavioural issues [41], including the aspects of risk management [42–44], agency, information asymmetry, and capital structure [44,45], as well as purchasing decision making [45,46]. However, there is paucity of literature on corporate governance, a critical component of CSR, in mitigating managerial irrational behaviour [47], especially within REITs.

This study contributes to the literature in a number of ways. First, this study extends upon the previous limited overconfidence studies on REITs. To the best of our knowledge, no study has been dedicated to REIT CEOs' overconfidence except the study of Eichholtz and Yönder [31]. This study offers a complete understanding of the role of overconfidence on corporate investment decisions, with a particular emphasis on the A-REIT market. Unlike Eichholtz and Yönder [31], this study found that CEO confidence does not have a significant impact on A-REITs investment decision-making. This highlights the importance of international evidence. This also highlights that corporate governance does have a role in reducing the behaviour bias. Second, the recent emergence of behavioural studies in the financial markets has resulted in an increasing number of research dedicated to REITs due to their unique characteristics [31–33,48], which includes REITs' property investments that can be exactly identified, a matter which is not possible with other companies [31]. Eichholtz and Yönder [31] stressed that this is specifically advantageous for behavioural studies because investments could be exactly observed unlike most other companies, which forces researchers then to focus on mergers and acquisitions. As such, this study contributes to the ongoing discussion on eliminating behavioral issues such as CEO overconfidence by offering international evidence.

Third, this A-REIT study is the first attempt to gauge to what extent A-REIT CEOs are overconfident. It is worth noting that A-REITs heavily contributes to the Australian GDP. As of December 2019, Australian GDP was USD 1.4 trillion, whilst the market cap of A-REITs itself was USD 99.82 billion [3], which is approximately 7.1%. In the light of this, an investigation of A-REIT investments and the way it is impacted by behavioural biases, especially overconfidence, is critical. As a matter of fact, past studies have shown that CEOs overconfidence is associated with a low and bad future performance [31,49]. This study contributes to the limited behaviour finance studies of A-REITs [50], indicating that more financial and behavioural research concentration should be devoted to A-REIT property investments.

2. Literature Review

This section consists of two parts. The first part discusses the importance of overconfidence and its impact on investment. Secondly, it examines REIT studies. Particularly, the application of behavioural finance on REITs will be discussed. The second part also reviews the issues of corporate governance and its impact on investment behaviour.

2.1. Overconfidence

Overconfidence is considered one of the strongest findings in the field of behavioural finance as well as in the psychology of judgement [51]. It is one of the most important biases and is investigated extensively in behavioural finance studies. It is an overestimation of one's ability, underestimation of risk and exaggeration of the ability to control events. Overconfidence is one of the most dangerous behavioural biases in the financial market and it can be caused by self-serving bias and illusory superiority [52].

Psychological factors and emotions, especially overconfidence, can affect people's investment decisions, and may seriously harm their wealth [53]. Moreover, investors' overconfidence will make them trade more frequently because they tend to underestimate the risk of their investments [54].

The issue of overconfidence has been extensively covered given its implications in the decision-making process and investment performance. Buying, selling and holding decisions made while trading [55], financial saving behaviour [56], participation in the financial market [57] and many more have been investigated in the past, in addition to securities performance in the case of overconfidence and various behavioural biases [31,58–60].

Since overconfidence has a major role at the time of making investment decisions, this trait can lead to many extreme scenarios in the financial market. Important examples of these scenarios are bubbles [61,62], volatility [59,62,63] and excessive trading [64].

The quality of information available to investors, stakeholders and the board of directors might be affected by the CEOs [65], thus affecting the investment decisions of the company. The behavioural biases of the CEOs, especially overconfidence, also impact their information provision incentives [66].

Malmendier and Tate [67] investigated the relationship between managerial overconfidence and mergers and acquisition. The authors found out that decisions made by overconfident CEOs for a merger were value-destroying. In addition, it was found that US REITs' property investments tend to increase under the management of overconfident CEOs, and this associated with a weaker operational performance [31]. Further, REIT's managers sell their winning properties while holding to their losing one since acquisition [68]. This is in line with the prospect theory, which says that people tend to avoid regret by selling their winning investments, while keeping their losing ones.

There are many differences between the broad stock market and the A-REIT market. Thus, what can be applied in the stock market does not necessarily apply to investment vehicles such as REITs. The impact of corporate governance on REITs' investments is one important example [48]. The authors explained that the agency problem is less likely to be present in the REIT market. This is consistent with [33] who stressed that the CEOs' behavioural biases can be related to variation in the capital structure, which if consistently evaluated, can help mitigate overconfidence and overinvestment problems [49,69]. Further, market participants in different countries have distinct social and cultural characteristics. For this reason, the level of overconfidence may vary from one country to another, hence the same matter for the trading and investment behaviour of investors [70].

Corporate governance research findings in the A-REIT market have differed from what is found in the US-REIT market [10]. The authors have found contradicting results when comparing corporate governance's impact on the Australian and US-REIT markets. Corporate governance had a substantial impact on A-REITs' performance while no significant relationship was found with US-REITs' performance [10]. Since corporate governance has a vital role

in mitigating overconfidence, overinvestment and underinvestment [58], more research should be devoted to A-REITs and overconfidence under these special settings.

2.2. Corporate Governance and Overinvestment

The problem of overinvestment could happen due to the conflict of interests between the stakeholders of the company. This conflict of interest has a huge influence on the investment policies, corporate governance and capital structure of the firm. Overinvestment could be caused by a conflict of interest between investors and managers [71], in which managers may misuse their power during the decision-making process.

This may damage the interest of the shareholders, as managers may excessively invest in risky and unprofitable projects [72]. The authors stressed that the total value of the firm will drop given that CEOs consider their roles as more important of that of shareholders, a matter which rises the conflict and subsequently produces opportunistic behaviour.

The overinvestment could happen under various circumstances, one of which might be related to the financial resources that a company has [69]. Instead of using free cash-flow to distribute dividends, the author stated that managers are using it for opportunistic purposes and investment in nonprofitable projects. Such behaviour could create an expansion beyond the optimal level and lead to the empire-building phenomenon. In this case, the firm size will increase but not its value.

This issue contradicts with the interest of the shareholders. Excessively increasing the firm size could only be for the benefit of the managers [73]. Therefore, managers seek to invest more in projects even if the projects have negative net present value (NPV).

Another form of overinvestment can be related to the overconfidence of CEOs. Even if managers have good intentions and are trying their best to serve the best interest of the company and shareholders (by maximising the value for them), they may overestimate their managerial abilities and make the same mistake through investing in projects that appear to have a negative NPV [74].

Although the overinvestment problem is very common, it can be mitigated and reduced when a company applies a regular and consistent evaluation of its capital [69]. To illustrate, if funds allocation is regularly evaluated to see where money should be used, such as using it in new projects, debt recourse etc., then the conflict between the managers and shareholders will effectively be dealt with. Following this method will limit the managers' discretion in using the resources of the company and the agency, hence they will properly allocate the free-cash flow. As debt recourse has been just used as an example, this action can limit the in-efficient usage of cash-flow, as reimbursing the loan along with its interest happen before any new project can be funded [71].

Each country has its own corporate governance principles and recommendations that companies must abide with. These principles and recommendations aim to meet the expectations of investors and achieve a good governance outcome [75]. In Australia, the principles and recommendations are not mandatory because the ASX Corporate Governance Council recognizes that every firm may have different culture, size, and history, along with other various differentiated factors. However, Australian firms must disclose against any recommendation they choose not to follow.

As a result of active ESG disclosure, REITs are found to have a better access to capital, lower cost of debt and high credit ratings, and as well as an enhanced financial flexibility and higher firm value [37]. This is consistent with Park et al. [39], who found that CSR activities and disclosure had a positive impact on the long-term performance of financially constrained companies.

Although there is an extensive research has been conducted on behavioural finance and corporate governance (e.g., agency problem, overinvestment, underinvestment), there are very limited number of behavioural studies on A-REITs, especially overconfidence studies. This study aims to address the gap by examining A-REITs' managerial and corporate overconfidence.

Accordingly, the objective of this study is to assess A-REITs' managerial overconfidence and find out if CEOs' overconfidence leads their companies to have an overconfident investment behaviour. This can be achieved by addressing the following research questions:

RQ1: *To what extent are A-REIT CEOs overconfident?*

RQ2: *Did CEO overconfidence have a profound impact on A-REITs corporate decision-making?*

The "Method" section describes the type of data used in this study, states the data sources, and discusses the method developed after a review of the A-REIT and overconfidence literature.

3. Method

The data were collected from Eikon, DataStream, MorningStar and A-REITs' annual reports. They cover 92 CEOs across 46 A-REITs between 2000 and 2019. Both currently trading and delisted companies were included to avoid survivorship bias. However, there are partially and totally unavailable data for some A-REITs which resulted in their exclusion from the study.

Further, some currently trading companies have also been excluded because they were either listed in 2018 or 2019, as the one-year period as a CEO is not enough to examine CEO's behaviour and does not align with the research objectives and methodology, which follow previous studies [31,66]. As such, 34 companies were excluded from this study. The period of 2000–2019 has been chosen as it allows for CEOs' behaviour investigation before, during and after the GFC.

CEOs are already exposed to company-specific risk as their personal wealth depends on the company they work for, such as their compensation, wages and pension plan. Having this in mind, if CEOs keep buying shares of their companies, it is a clear indication that CEOs are very confident of their firms' success, performance and fortunes [31]. It is worth remembering that they have the opportunity of diversifying their market portfolio, by investing in other companies from different industries.

CEOs' phenomenon of buying more shares of their own company's stock was documented in the literature [49,66,67]. The authors classified CEOs as overconfident when they buy more shares than they sell. CEO's failure to avoid more exposure to their companies' risk, which they already are vulnerable to, indicates their overestimation of their companies' returns in the future.

Billet and Qian [49] stated that CEOs' past success has a huge influence on their future decisions and found that they are overconfident. They have also found that CEOs involved in a successful acquisition made them engage more in similar projects, but these new acquisition projects were not profitable anymore.

It is expected that firms' investments to increase when CEOs are overconfident [31]. On the other hand, the authors stressed that A-REITs' property sales are expected to decrease if CEOs are overconfident. Glaser and Weber [55] have investigated the corporate investment activity and they have separated buying and selling activities. In view of that, this research follows their method and investigates both property acquisition and disposition activities separately.

Taking into consideration the previous literature that indicates CEOs' personal and corporate excessive trading activity, this study investigates the relationship between CEOs' personal share trading and their corporate property acquisition and disposition activities. Further, CEOs were only considered and included in this study if they were in their managerial position for at least two years, following Eichholtz and Yönder [31].

If CEOs buy more shares while also investing excessively in properties, this indicates a corporate overconfidence behaviour. The same matter applies for the property sales, which means a decrease in properties sales reflects CEOs' overconfidence impact on A-REITs' strategies and behaviour.

After reviewing past overconfidence studies, two models are developed to separately analyse the acquisition and disposition activities of properties, and to see the relationship of CEO' shares, corporate cash and debt with these activities.

First, model 1 examines how CEOs' overconfidence would affect CEOs' property acquisition decision making. More specifically, property purchase (the dependent variable) is regressed against five independent variables which are CEOs' Shares Investments, Cash, Funds from Operations, Market Value and Debt Ratio.

- Model 1:

$$Y_{pt} = \beta_1 + \beta_1 O_t + \beta_2 C_t + \beta_3 F_t + \beta_4 M_t + \beta_5 D_t$$

where Y_{pt} represents property acquisition level in year t .

O_t : CEOs' Shares Investments

C_t : Cash

F_t : Funds from Operations

M_t : Market Value

D_t : Debt to total assets (Debt Ratio)

Second Model: Property Sales (the dependent variable) is regressed against five independent variables which are Shares Investments, Cash, Funds from Operations, Total Assets and Debt Ratio.

- Model 2:

$$Y_{st} = \beta_1 + \beta_1 O_t + \beta_2 C_t + \beta_3 F_t + \beta_4 T_t + \beta_5 D_t$$

where Y_{st} is the sales of property, and T_t is the Total Assets in year t .

Therefore, the hypotheses are developed as follow:

Hypothesis 1. *There is a positive association between overconfident CEOs and property acquisition activities.*

Hypothesis 2. *There is a negative association between overconfident CEOs and property disposition activities.*

4. Results

It is found that 68% of A-REITs' CEOs are overconfident during this period. On the other hand, 22% of CEOs have not been involved in any of their companies' shares purchase in open market operations. The documented result of overconfident CEOs here is higher than the comparable US study of Eichholtz and Yönder [31]. In the US, 34% of US REITs' CEOs were classified as overconfident for those that had at least two years appearance in their managerial position [31]. However, it is worth noting that the authors' study covers a period of just seven years (2003–2010), while this research covers a greater period (2000–2019). The disparities also highlight the importance of international evidence on the overconfidence issue.

Figure 2 shows the increase in the CEO overconfidence level in the last 20 years. Figure 2 reflects the average of overconfident CEOs that bought shares during their tenure in the managerial position. While this figure has not reflected that overconfident CEOs constitute 68% of the sample. This can be attributed the fact that the majority of the CEOs have not stayed in their position for the whole sample period (2000–2019). This is intuitively appealing. Further, tenure periods vary among CEOs, which also depicted in Figure 2. However, taking the total sample period together into consideration, 68% of CEOs were overconfident.

According to Eichholtz and Yönder [31], CEOs are classified as overconfident during their whole period in the managerial position if they are buying shares during their tenure. Therefore, even if a CEO does not buy a share during just one particular year, it does

not mean he or she is not overconfident as the entire tenure period was used as a benchmark. Accordingly, Figure 2 reflects CEOs as overconfident during their whole period in their managerial position.

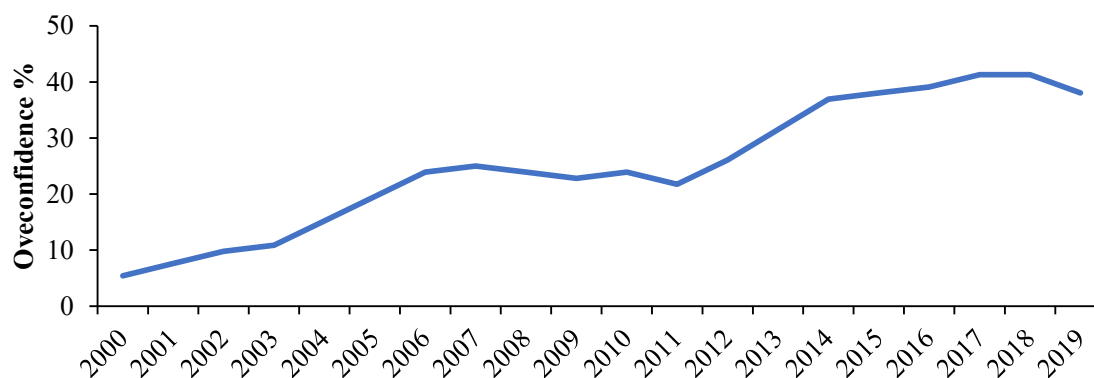


Figure 2. Degree Variation of Overconfidence (in Percentage). Source: Authors' compilation from Eikon Note: This figure has been constructed by taking the average of CEOs that bought shares during their tenure in the managerial position.

Overall, there is evidence that the majority of A-REITs' CEOs are overconfident over the study period of 2000–2019. This raises an issue of how these will affect A-REITs' investment activities. Do A-REITs' CEOs tend to buy more properties? Do they tend to sell less properties?

Tables 2 and 3 show the regression results from Model 1 analysis by using property acquisition activity of A-REITs as the dependent variable based on the value and volume of the transactions. This analysis is carried out to assess the relationship between A-REITs' property investment activities with that of the CEO's level of confidence.

Table 2 Model 1 Summary.

| Model | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|----------|-------------------|----------------------------|
| 1 | 0.8169 | 0.7467 | 1.0164 |

Table 3. Model 1 Results.

| Variable | Coefficient | Std. Error | T- statistic | Prob. |
|-----------------------|-------------|------------|--------------|--------|
| C | 2.5099 | 5.5991 | 0.4482 | 0.6544 |
| CEO Shares | 0.2377 | 0.1594 | 1.4913 | 0.1372 |
| CASH | −0.2043 | 0.0933 | −2.1891 ** | 0.0296 |
| FUNDS_FROM_OPERATIONS | −0.1349 | 0.2383 | −0.5659 | 0.5720 |
| MV | 0.9954 | 0.3057 | 3.2560 *** | 0.0013 |
| DEBT RATIO | 1.7564 | 1.0819 | 1.6234 | 0.1058 |

Note: the dependent variable is Property Investment (Property Acquisition); ** and *** indicate significance at 5% and 1% respectively. Robust standard errors were employed.

The results of Table 3 indicate that there is a positive coefficient between A-REITs' property acquisition activities as the dependent variable and CEOs' shares trading as the independent variable. This shows that A-REITs have the tendency to acquire more properties as CEOs accumulate more shares in their own companies. This may be explained by the fact that overconfident CEOs have a more optimistic corporate investment strategy that is reflected through, amongst other things, more aggressive property acquisition activities. However, it is worth noting that this is found not to be statistically significant (p -value = 0.1372). These results are different from what is found in the US, as Eichholtz and Yönder [31] found a significant evidence that overconfident CEOs increase the property

acquisition activities of their REITs. The divergence of the results suggests the importance of international evidence. More specifically, A-REITs and US REITs are trading under distinct settings, including but not limited to, corporate governance. Further discussion about this divergence is required and will be held in the “Discussion” section.

Further, the analysis also indicates a negative coefficient of A-REITs’ cash level, reflecting that an inverse relationship between AREIT’s cash level and property acquisition activity, and this relationship is found to be statistically significant at a 5% level. Specifically, for every 1% increase in the property acquisition volume will result in a 0.2% decrease in cash. This result is also corroborated with the positive estimation by using the debt ratio (1.76) as the explanatory variable, albeit a statistically insignificant result. This relationship is not unpredictable as A-REIT companies are expected to use a combination of existing cash stock and leverage as they seek to expand the size of their investment portfolios, thus explaining the decrease in the A-REITs’ cash level and the increase in liabilities (debt level).

The results also exhibit a positive and statistically significant relationship at 1% significance level between the asset acquisition activity of A-REITs and their market value. As A-REITs’ primary business activity is investing in income-producing assets with a long-term holding period, the positive impact on their market value from the acquisition activities has been correctly identified in this analysis.

In addition, the analysis also indicates a negative coefficient (−0.1349) between A-REITs’ Funds from Operations (FFO) and property acquisition activity, which indicates that an increase in property investments is associated with a decrease in operational performance. However, it is not found to be statistically significant (p -value = 0.5720). Table 2 shows that 81.69% of the variation in property acquisition activity is explained by the changes in the independent variables.

Tables 4 and 5 show the results from Model 2 by using property disposition activity of A-REITs as a dependent variable based on the value and volume of transactions. This analysis carried out to assess the relationship between A-REITs’ property selling activities with that of CEOs’ level of overconfidence.

Table 4. Model 2 Summary.

| Model | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|----------|-------------------|----------------------------|
| 2 | 0.6738 | 0.5135 | 1.4638 |

Table 5. Model 2 Results.

| Variable | Coefficient | Std. Error | T-Statistic | Prob. |
|-----------------------|-------------|------------|-------------|--------|
| C | 6.7518 | 10.2246 | 0.6603 | 0.5099 |
| CEO Shares | −0.3586 | 0.2703 | −1.3264 | 0.1864 |
| CASH | 0.5108 | 0.1509 | 3.3850 *** | 0.0009 |
| FUNDS_FROM_OPERATIONS | 0.0226 | 0.2663 | 0.0848 | 0.9325 |
| TA | 0.0867 | 0.5586 | 0.1553 | 0.8767 |
| DEBT RATIO | −0.5153 | 1.7917 | −0.2876 | 0.7740 |

Note: the dependent variable is Property Sales (Property Disposition); *** indicates significance at 1%. Robust standard errors were employed.

The results of the regression analysis indicate that there is a negative coefficient between A-REITs’ property disposition activities as the dependent variable and CEOs’ shares trading as the independent variable. This shows that A-REIT companies have the tendency to sell less properties as CEOs acquire more shares in their companies. However, this relationship is found not to be statistically significant (p -value = 0.1864). Results here are not in line with the findings of Eichholtz and Yönder [31]. The authors found that

overconfident CEOs decrease their REITs' property disposition activity. Their results imply that overconfident CEOs tend to sell less properties (while also buying more) to create a greater size of portfolio than other CEOs, which reflects the empire-building behaviour. On the other hand, there is no statistical evidence in this study that A-REITs' CEOs are doing the same thing. In a similar manner to Model "1" results, since the results are not in line with the results of the US study of Eichholtz and Yönder [31], then this also implies that the special settings of corporate governance may have a significant impact on A-REITs' trading strategies. The "Discussion" section will discuss the potential role of corporate governance in A-REITs' managerial decision-making process.

Further, the analysis also indicates a positive coefficient (0.5108) between A-REITs' cash level and property disposition activity, and this relationship is found to be significant at a 5% level (p -value = 0.009). Specifically, for every 1% increase in the property disposition volume will result in a 0.51% increase in cash. This result is also collaborated with the estimation by using the debt ratio (−0.51) as the explanatory variable, albeit a statistically insignificant result. This relationship is not unpredictable as the property sales are going to increase the cash level while also decreasing debt level because of debt repayments, hence reducing the amount of A-REITs' liabilities (debt level). The results also exhibit a weak positive and not statistically significant coefficient between property disposition activity and A-REITs' Total Assets, which indicates that the total assets of A-REITs are not impacted much from property sales. Table 4 shows that 67.38% of the variation in property disposition activity is explained by the changes in the independent variables.

5. Discussion

The results found in this study contradict what is found in the US [31]. The study found that the overconfident CEOs of US-REITs tended to increase the property acquisition activities and decrease the disposition activities. However, this study found contradictory results in which our results are believed to have contradicted the previous US-REITs' research findings for one important reason, which is corporate governance. To illustrate, the literature indicates that CSR and corporate governance findings are different between the US and Australian markets. Newell and Lee [10] found that corporate governance had a great impact on A-REITs while having no significant relationship with US-REITs. The authors stressed that corporate governance was a key issue for A-REITs' ongoing success, with an emphasis towards the role of independent directors, the board of directors and the issues that A-REITs' decision-makers must consider, such as disclosure and transparency.

Further, Billet and Qian [49] emphasized that overconfidence has serious implications for corporate governance. The overinvestment problem, which can be caused by CEOs' overconfidence, can be mitigated when a company consistently evaluate its capital [69]. Hence, this will create limitations which impact CEOs' discretion in using the financial resources of the firm. Since A-REITs are renown to have a strong commitment to CSR and corporate governance practices [10], these same practices are stressed to have a great impact on overconfidence [49].

This study further looks at A-REITs' environment, social and governance (ESG) scores to explore their status and A-REITs' response to CSR and corporate governance practices.

Figures 3 and 4 show the increase in the ESG combined score from 2004 to 2019. The rise in the scores indicates that A-REITs do adopt CSR and corporate governance rules and practices considerably. Further, this is further supported by Figure 4 in which it shows that A-REITs have the top 5 ESG combined scores for the period 2004–2019. More specifically, the quality of corporate governance varies between Australian companies, as compliance with corporate governance rules and regulations are not mandatory [75], and this is reflected in Figures 3 and 4. Most importantly, since A-REITs' scores indicate that corporate governance rules are seriously considered, this carries important implications for CEOs' investment behaviour, as Billet and Qian [49] stressed that corporate governance greatly impacts overconfidence.

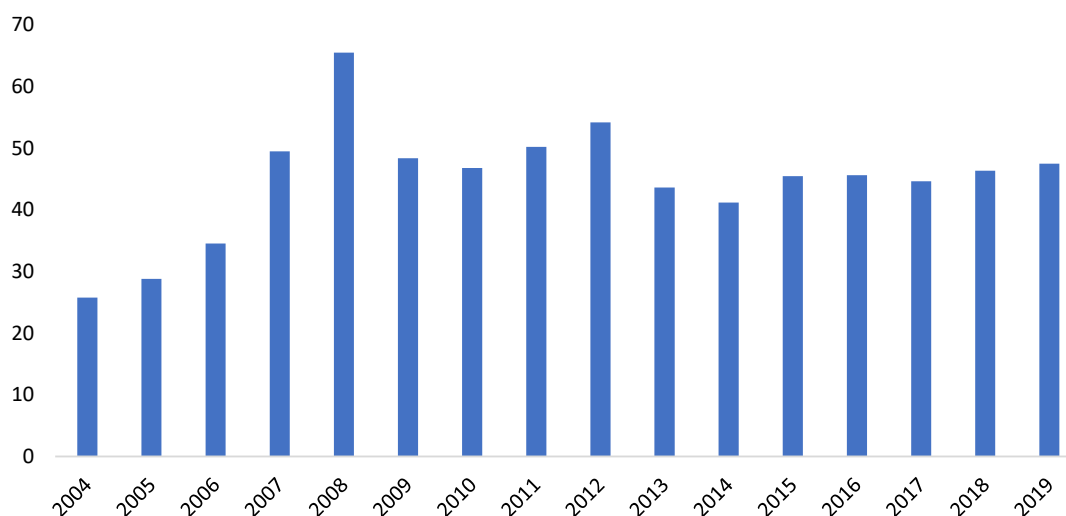


Figure 3. ESG Scores of A-REITs. Source: Authors' compilation from DataStream.

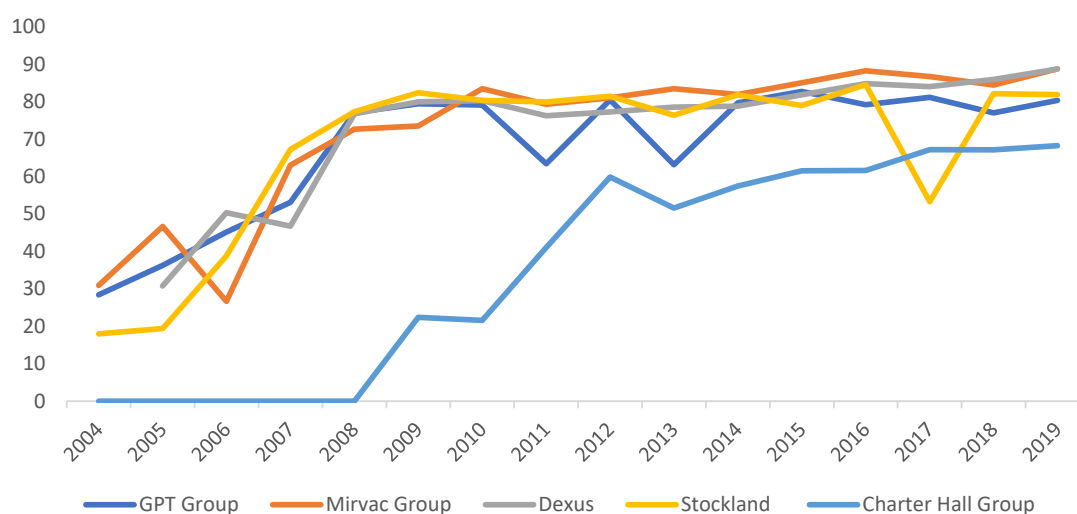


Figure 4. Top 5 ESG combined scores of A-REITs. Source: Authors' compilation from DataStream.

6. Conclusions

The A-REIT market is one of the most important and successful REIT markets globally. As publicly trading companies, A-REITs might be exposed to behavioural biases that can impact their decision-making process. Based on the research questions, this study explores the issue of overconfidence in the A-REIT market and aims to examine the impact of CEOs' overconfidence on A-REITs' property investment decision makings.

This study has found several key findings. First, 68% of A-REIT CEOs are classified as overconfident CEOs in which they have increased their shareholding during their CEO tenures. However, there is no empirical evidence to support that overconfident CEOs do have an impact on A-REITs' property investment decision making. The results indicate that CEOs overconfidence did not have a significant impact of A-REITs' property trading and investment activities. The results, however, are not consistent with the overconfidence study conducted in the US [31], indicating the importance of international evidence in this matter. The authors have found evidence that CEOs overconfidence had an impact

on US REITs property acquisition and disposition activities. Importantly, the different results between this study and the existing overconfidence studies, especially the one that Eichholtz and Yönder [31] have conducted in the US, can be attributed to corporate governance. Billet and Qian [49] and Park et al. [39] have emphasised the role and impact of corporate governance on corporate investment behaviour. Corporate overinvestment and underinvestment can be mitigated by applying a strong structure of corporate governance [76]. Billet and Qian [49] stressed that the sources of overconfidence should be explored so that proper action and adjustments can be taken in case overconfidence is present and developing, implying that overconfidence bias can be mitigated via good corporate governance.

These findings are very important to both institutional and retail investors seeking exposure in high-quality commercial property assets. The implementation of corporate governance practices and framework, which is reflected in ESG scores and Australian management literature, makes A-REITs more accountable to their shareholders. Further, good corporate governance enables A-REITs to operate more efficiently and improve their access to capital. Most importantly, this research indicated that different results can be found amongst other REIT markets in the world, and these results can be crucial to both their local and international investors. Further, there might be other factors that can help mitigate corporate overconfidence. These matters strongly imply that further research should be devoted to overconfidence and other behavioural biases in the global REIT markets.

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